World Satellite Update™

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Satellite Newsflash: The Pacific

TDMA Satellite System Purchased by Indonesia

COMTEL, a part of Spar Aerospace's Communications Group, has shipped a 60 Mb/s Time Division Multiple Access (TDMA) satellite communications system to Indonesia's PERUMTEL for installation at ten earth stations throughout the island nation. TDMA is a digital signaling process in which all earth stations efficiently and systematically utilize a single satellite carrier frequency for very short high-speed bursts on a time sharing basis. Individual channel data rates may range from 2.4 kb/s to 15 Mb/s.

Although the new TDMA system will primarily be handling voice traffic, the TDMA system can also provide a more cost-effective and efficient handling of video, facsimile, and data transmissions via Indonesia's Palapa B satellites. Included in the TDMA system is a Demand Assigned Multiple Access (DAMA) capability. DAMA is a telephone switching system in which a pool of voice channels are allocated on demand rather than on a preassigned basis. Valued at more than $3 million, the TDMA network is scheduled to be installed and tested during the first half of 1987 and placed in operation toward the latter half of the year. A planned expansion of additional earth stations is scheduled for installation in 1988.

Located in Santa Maria, California, COMTEL is a leader in the design, manufacture and installation of TDMA systems to meet the needs of government and corporate customers. COMTEL is reportedly the only TDMA manufacturer to also offer bulk digital encryption with its system for complete network security. Its CT-5000 Digital Encryption System has been approved by the U.S. National Security Agency and can be used for voice, data, facsimile and videoconferencing on full-duplex links at rates up to 64 Mb/s.

(For further information, contact: Bill Brobst at Stackig Swanston (703) 734-3300.)

Chinese To Acquire International Broadcast Center

The COMSAT Corporation, the Australian-based Parry Corporation and ICOM Ltd. have reached agreement with China Central Television to design, develop and operate the People's Republic of China's first international broadcast exchange center (IBEC). The $50 million complex, to be located in Beijing, will include a communications center equipped with satellite transmission facilities, a state-of-the-art local area network, radio and television studios, and production and editing facilities. The IBEC will also house a 300-room hotel, convention center, and 100-unit apartment complex. Construction is scheduled to begin in March 1987 and be completed in time for the Asian Games which Beijing will host in 1990.

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The U.S. COMSAT Corporation will be responsible for all telecommunications facilities in the center, including mobile telephone and paging services and private satellite network services. This effort is valued at several million dollars, exclusive of equipment and installation. Based in Sydney, Australia, ICOM will be the leader for planning and equipping the radio and television production and editing facilities. The Parry Corporation, a diversified public corporation headquartered in Perth, Australia will focus on the design and construction of the overall hotel and apartment complex. The joint venture will be directed by a board, with Parry Corporation, COMSAT Corporation and China Central Television participating.

(For further information, contact: Kim Baumgartner, COMSAT Telephone (202) 863-6623.)

Satellite Newsflash: Europe, Africa and the Middle East

Thames Television to Become Astra Shareholder

Thames Television, the largest independent television contractor in Great Britain, has just received authorization from the Independent Broadcasting Authority allowing it to become a shareholder in the Société Européenne des Satellites (SES). Following authorization from the Luxembourg government, Thames TV will take a 5% stake in SES when the next equity issue is completed. Mr. Richard Dunn, Managing Director of Thames will then join the Board of SES. The move to acquire a 5% ownership in SES follows a decision on the part of Thames Television to take a 22% stake in the British cable TV venture known as the "Children's Channel."

Founded in 1968, Thames Television PLC broadcasts in the London area during weekdays. Since Thames TV was not a candidate in any of the consortia bidding for the British DBS satellite, it has developed a keen interest in the medium-powered ASTRA satellite project. According to SES, Arianespace plans to launch its ASTRA satellite in February, 1988 on Ariane Flight 27. However, it is likely that the resumption of Ariane flights may be delayed from February, 1987 to April or May of 1987. This will likely affect the launch dates of some or all of Ariane's customers. Once successfully deployed, ASTRA will broadcast 16 television channels capable of reception by the major part of Western Europe using an 85 cm (34 inch) diameter antenna.

In a related development, seventy-five experts from satellite television reception equipment manufacturing companies attended meetings in Luxembourg in late January to learn more about the upcoming ASTRA project. Industry organizations, PTTs, government ministries and satellite TV programmers were also present. Although SES's technical presentations underpinned the seminars, the focus was on reception equipment promotion and consumer marketing.

(For further information, contact: Carlo Rock, Marketing and Public Relations Manager, SES Telephone (352) 49 94 711.)

Republic of Ireland Legalizes Satellite Dishes & Approves DBS Satellite Proposal

Following eighteen months of negotiations with the Irish Department of Communications, cable TV operators in Ireland can now legally provide their subscribers with satellite TV programming. An experimental nine-month license is available, provided that cable operators do not charge extra for the satellite-delivered services. By early 1987, cable systems in Dublin, Galway, Waterford and Cork are expected to begin providing their subscribers with satellite TV programs. Following the test period, the Department of Communications will analyze the results to determine what the permanent policy of the government in the area will be.

More than 300,000 Irish citizens already have access to cable. Subscribers have been receiving up to six terrestrial TV services via their cable hookups. With the legalization of satellite TV, an additional four previously unused cable channels will be able to carry satellite TV signals. Cable operators will now be able to quickly expand the number of channels available to their viewers.

On December 10 1986, the government of the Republic of Ireland granted approval to Atlantic Satellites Ltd. to construct a satellite system capable of not only transmitting DBS signals into Ireland

and the U.K. but also FSS telecommunications traffic into western Europe. Atlantic Satellite is owned by the U.S. corporation Hughes Communications Galaxy Inc. (80%) and Irish businessman James Stafford (20%). Eiresat I will carry 5 DBS channels, each with 100-watt TWTAs, and either twenty-four 15-watt transponders or ten 50-watt transponders for telecommuncations services within the Fixed Satellite Service (FSS) 11 & 12 GHz frequency bands. The Eiresat satellite will be manufactured by Hughes Aircraft and based on that company's HS-393 spacecraft. A TT&C earth station will be constructed at Shannon, Ireland to control the satellite once launched into geostationary orbit.

Eiresat's 5 DBS channels will not only fully cover Ireland, but illuminate most of the British Isles as well as portions of western Europe. The lower-powered FSS transponders will be connected to beams covering the continental U.S. and Europe. Atlantic Satellite is presently considering the possibility of cross-strapping European and American transponders to provide for transatlantic services. If Eiresat intends to become an international carrier, however, successful coordination with Intelsat would be a prerequisite prior to deploying the satellite.

Two channels will likely be offered to Radio Telefis Eireann (RTE), the national TV broadcasting organziation of the Republic of Ireland. A third channel may be obtained by Independent Newspapers, one of the organizations that initially competed with Atlantic Satellite for approval from the Irish government.

Eiresat DBS Channel Assignment Chart

WARC 77

Tr.#	Pol.	Downlink Frequency
2	LHCP	11.74666 GHz
6	LHCP	11.82338 GHz
10	LHCP	11.90010 GHz
14	LHCP	11.97682 GHz
18	LHCP	12.05354 GHz

Europe's Cable & Satellite '87 Exhibition

A major exhibition for cable and satellite vendors is scheduled to appear at the Wembley Exhibition and Conference Center in London between March 26 and March 29, 1987, with March 26 & 27 exclusively for business visitors, buyers, developers and the media, advertisers and investors, and March 28 & 29 for access by the general public. Cable and Satellite '87 is sponsored by the European Satellite Television Association and supported by trade publications "Cable and Satellite Europe" and "Satellite TV Europe." Running alongside the exhibition will be a high level conference for the cable and satellite industries. The conference will feature leading experts from every industry sector, presenting definitive market data and debating the critical issues vital to business opportunities in Europe. The exhibition will also feature the release of several new products, including the much heralded planar antenna array developed jointly by Matshushita and Comsat General.

(For further information on participating or attending Cable and Satellite Europe '87, contact Alison Black Telephone: (011 44 1) 486 1951.)

Pakistan Company Manufactures 6 Meter Antennas

Information Technologies, a company located in Karachi, Pakistan, has begun to manufacture 6-meter C-band antennas with az/el mounts for sale in the Middle East. According to Dr. Altamash Kamal, Chief Executive of the company, Information Technologies has already manufactured and installed several 6-meter antennas in Pakistan for the reception of Intelsat TV services including AFRTS, AFRTS-SEB, and the television services of Oman, the People's Republic of China, and the Soviet Union.

(For further information, contact: Dr. Altamash Kamal, Information Technologies, 119-120, Qamar House, M.A. Jinnah Road, Karachi-02 Pakistan. Telephone: 672732, 685256, 200840, 201610, or 202046. Telex: 25374 Imroz Pk.)

Satellite Newsflash: The Americas

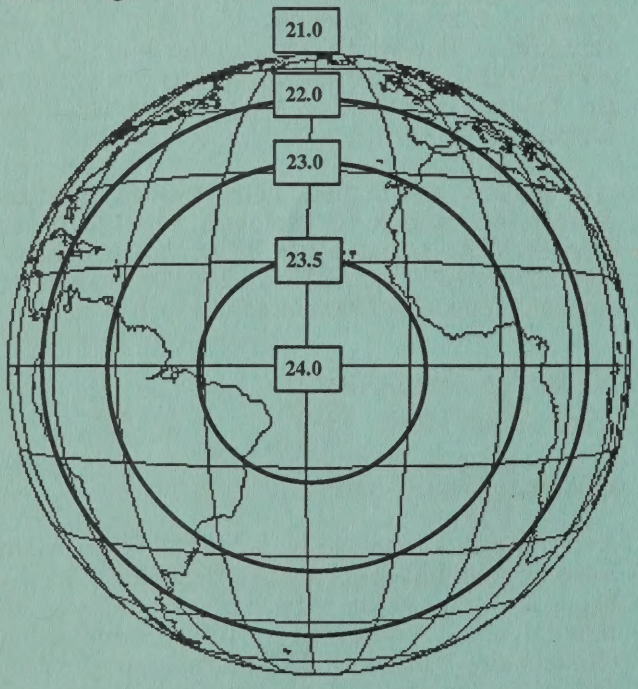
CIA Inaugurates New Satellite Service

According to a report to be published in the March issue of **Satellite Direct** magazine, the CIA has begun using a satellite owned and operated by the International Satellite Telecommunications Organization (Intelsat) for information gathering activities. An earth station in Great Britain two weeks ago began intercepting the television transmissions of a Russian satellite over the Indian Ocean and routing them to a newly commissioned CIA terminal outside Washington D.C. Foreign policy officials in the U.S. Capital can now watch

the Soviet evening news several hours before it is seen in Moscow, giving them the opportunity to brief key governmental officials and even prepare a concerted media response in the event of major news occurrences.

The retransmission of the Soviet evening news program Vremya [Russian for "Time"] before the program is aired in Moscow should be regarded as an information coup for the CIA. With this new capability, the U.S. government can now almost instantaneously analyze, and respond to new Soviet initiatives and propaganda offensives.

While one CIA operator confirmed that FBIS (for Foreign Broadcast Information Service) was a CIA program involved, in part, in the interception of Russian TV programming, he declined further comment. It appears likely that other CIA earth stations around the world are also involved in the FBIS project, and that the satellite transmissions of other nations are being intercepted and relayed back to the United States. Though official confirmation had not been received by the date of this release, one CIA feed monitored by observers was determined to have originated from Libya. Intelsat VA F11 at 27.5° west longitude carries the transmissions on Tr. 36 [21] using Left Hand Circular Polarization.



Global Beam Half Transponder Coverage from 27.5° West

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Satellite Direct is a monthly trade magazine for professionals involved in all facets of residential and commercial satellite communications.

(For further information, contact Howard Shippey, Executive Editor, Telephone: (208) 322-2800.)

COMSAT International Inaugurates New International Service

On January 13 1987, COMSAT International announced that its all-digital international communications services are now available from three U.S. West Coast earth stations to Europe and the Far East. Two stations are located at the Bay Area Teleport in San Francisco, and one at Santa Paula, California near Los Angeles. With the introduction of the new service, COMSAT International becomes one of the first to offer direct satellite transmission services between the west coast and Europe. COMSAT International has also introduced a discount program for customers that sign long-term contracts prior to March 31, 1987 for services that will begin by September 30, 1987. Customers signing a one-year contract for COMSAT International's west coast based international service will receive a 10% discount; those committing to two years of service through the San Francisco or Santa Paula earth stations will receive a 12% discount. Additionally, customers contracting for service through COMSAT International's Chicago, Houston, New York or Washington D.C. facilities will receive an 8% discount for a one year commitment or a 10% discount for a two year commitment.

"Businesses and government agencies on the West Coast will now have access to improved international communications services, and these services will be available through COMSAT International at a lower cost," said William Taylor, President of COMSAT International. "By locating our earths stations in San Francisco and Los Angeles, close to our customers, we minimize the need for expensive terrestrial links. And by providing single hop satellite transmissions to Europe, we'll give our users better and more reliable communications service."

(For further information contact Kim Baumgartner, COMSAT Telephone (202) 863-6800.)

Japanese TV Service to Air Via Satcom K2

According to reliable sources, a Japanese-language service consisting of news and other programs produced by Nippon Hoso Kyokai (NHK)--the

Japanese Broadcasting Corporation--will be packaged into four-hour segments that will be transmitted beginning this April by means of RCA's Satcom K2 Ku-band satellite. The Japanese program package will be delivered via satellite to the tens of thousands of Japanese business personnel who are now working in the U.S. The programs will keep Japanese abreast of developments at home and help to maintain their social and cultural ties with their native country while working in the U.S.

COMSAT Corporation To Acquire Total Ownership of HI-NET Communications

The COMSAT Corporation and the Holiday Corporation have announced that they have signed a letter of intent by which COMSAT Corporation would purchase Holiday Corporation's 50% interest in HI-NET Communications, a joint venture partnership of the two corporations, for $25 million. Closing on the sale, expected in early 1987, is subject to completion of definitive agreements and governmental reviews and approvals.

HI-NET which is in its second year of operations, already beams in-room video entertainment by satellite to more than 1,000 participating hotels at locations throughout the United States via the SBS III Ku-band satellite. HI-NET services are scrambled using Scientific Atlanta's B-MAC encryption system.

Commenting on the pending acquisition, COMSAT Corporation's Chairman and CEO, Irving Goldstein said, "This is another step in the strategic direction we've committed to for developing a video enterprise business. The potential new applications that we have in mind for HI-NET are exciting and go well beyond in-room entertainment." Goldstein also said, "Using our own satellite technology, we plan to expand channel capacity and services making HI-NET an even more attractive offering nationwide."

After the transaction HI-NET will continue to provide service to Holiday Corporation hotels as well as other hotels. These services now include both pay-per-view and free-to-guest television programming, satellite meetings and network communications. While some COMSAT officials have speculated concerning the possibility of also offering HI-NET services direct-to-the-home via small aperture Ku-band dishes, such an expansion of the HI-NET services will need to await the final outcome of the proposed merger between the COMSAT Corporation and the Contel Corporation. The proposed merger is subject to the approval of COMSAT and Contel shareholders and certain U.S. regulatory agencies. It is expected that if and when the proposed merger is finalized, Contel representatives will be given the opportunity to review all COMSAT programs now under development.

International Satellite Conference Scheduled for February 18th & 19th

Satellite VI: The International Conference on Satellite Communications and Broadcasting is scheduled to take place at the Marriot Crystal Gateway Hotel in Washington D.C. this February 18 and 19. Presented by Phillips Publishing Inc., the conference will explore the ramifications of the new satellite environment, new business opportunities in the international arena, and the impact of fierce competition. Speakers include: Dr. John E. Koehler, President of Hughes Communications Inc., Andrew Hospodor, President RCA Americom, Dr. C. J. Waylan, President of GTE Spacenet, Mimi Dawson, FCC Commissioner, Wilbur Pritchard, President DBSC, Brent Stranathan, Director of Telecommunications at ABC Television, Ken Leddick, President of Videostar Connections, and Dr. Joseph Pelton, Director of Strategic Policy at Intelsat.

(For further information, contact: Conference Registrar Telephone (301) 340-2100.)

Satellite Books Updated for 1987

The **Downlink Directory 1987** and the **Uplink Directory 1987** are now available from Virginia A. Ostendorf Inc. of Littleton Colorado. This year's books feature a new Canadian section. The directories aid those planning satellite events by listing C-band and Ku-band origination and receive sites available for public use.

The **Downlink Directory 1987** (557 pages) lists more than 3500 downlink sites including hotels, colleges, hospitals, corporations and broadcast facilities. A separate section is provided for transportable services.

The **Uplink Directory 1987** (170 pages) lists more than 500 transmit earth stations and provides information on available production and videotaping services. A detailed list of off-site premises tied to uplink facilities is also provided. The two-volume set is priced at $235; single directories are $130.

(For further information, contact Virginia A. Ostendorf, Inc., P.O. Box 2896, Littleton, CO 80161 Telephone: (303) 797-3131.)

Teleport International Inc. Acquires Public Service Satellite Consortium

Teleport International Inc., a newly formed Colorado Corporation has completed its acquisition of the Public Service Satellite Consortium, a non-profit corporation, for an undisclosed sum. Denver Uplink Teleport, the name under which Teleport International Inc. operates, is currently the only operating teleport in the state of Colorado. Originally built by NASA, this teleport was the world's first non military satellite transmission facility and is now celebrating it's tenth year of commercial operation.

(For further information, contact: David Sullivan, Denver Uplink Teleport, Telephone (303) 458-7273.)

Satellite Communications Network Launched by Nation's Rural Electrics

The National Rural Electric Cooperative Association (NRECA) has officially launched a pilot satellite project designed to deliver education, training, and news programming to rural electric systems nationwide. This new communications network, the Rural Electric Cooperative Network, broadcast its first member information program from studios in Alexandria, Virginia on January 22, 1987.

During a two-year pilot period, NRECA, in cooperation with the new National Rural Telecommunications Cooperative (NRTC), will broadcast a regular schedule of information and management training programs of major interest to rural electric systems. The network is designed for one-way video and two-way audio. Membership input during the pilot period will determine how the network can best meet systems' needs in the future.

NRECA's membership encompasses 1,000 consumer-owned rural utilities serving more than 25 million people in 46 states. The NRECA's satellite project is supported in part by a research grant from the NRECA Golden Arc Fund, a rural electric research program that provides funds to test and develop projects of benefit to rural electric systems and their consumers. Additionally, the project will be funded by individual rural electric systems' annual subscriptions.

(For further information, contact Tom Hoy, NRECA Telephone (202) 857-9534.)

North American Distribution of French TV Service Planned

An agreement in principal has been reached between French and Canadian governmental authorities which will allow the French-language TV service TV 5 to be distributed in Canada via satellite beginning in late 1987 or early 1988. TV 5 presently provides 8 hours each day (9 hours on Sunday) of French-language programming to more than 3,765,000 homes in western Europe and North Africa. The service is now carried by the Eutelsat I F1 satellite, with transmissions in the PAL video standard. TV 5 is owned by the three French public TV networks TF 1, Antennae 2, and FR3, the Belgian TV company RTBF, the Swiss TV company SSR, and the Consortium TV of Quebec Canada (CTQC).

FCC Approves Expanded DBS Operations, Cancels DBS Construction Permits

In November of 1986, the Federal Communications Commission approved a proposal from United States Satellite Broadcasting Inc. of Minneapolis, Minnesota that called for expanded use of the DBS spectrum for non-broadcast voice and data services. This decision provides a way for fledging DBS operators to offset the start-up costs of implementing expensive DBS broadcast services during their first five years of operation. Each DBS transponder will be required to carry TV broadcast services for at least 12 out of every 24 hours of operation, however.

On January 7 1987, the Federal Communications Commission cancelled three construction permits that would have permitted the building of three direct broadcast satellite systems. Because of their inability to satisfy the FCC's "due diligence" requirements, the DBS construction permits of the Antares Satellite Corporation, Digital Paging Systems of Texas Inc., and RCA American Communications Inc. were summarily revoked.

In a related development, Dominion Video Satellite has extended its agreement for the purchase of two DBS satellite from the COMSAT Corporation until April 15, 1987. In the interim, COMSAT Corporation is continuing to explore the possibility of selling the STC satellites to potential customers in Europe and elsewhere in the event that Dominion fails to conclude its agreement by the April 15th cutoff date. As reported in our January issue, Dominion has already signed a launch reservation agreement with the People's Republic of China for the deployment of one of the STC spacecraft

formerly belonging to the now defunct STC division of the COMSAT Corporation.

Satellite Communications Law Symposium Scheduled for March 5th

UCLA's fifth annual Biennial Communications Law Symposium: "Following the Footprints: Protecting Film and TV Rights in the World Satellite Marketplace" is scheduled for Thursday March 5, 1987 at the Beverly Hilton Hotel in Beverly Hills, California. Presented by the UCLA Communications Law Program in cooperation with the International Bar Association and the American Film Marketing Association, the symposium will also deal with worldwide trends towards privatization of TV, defining the new satellite TV markets, import of satellite distribution on marketing film and TV and a primer on satellite technology and space. Among the featured speakers will be : Rene Anselmo, Chairman of the Board of Panamsat; Patricia Diaz Dennis, Federal Communications Commission; Mel Harris, President of the Television Group of Paramount Pictures; Ahinichi Shimizu, Director General, International Cooperation, NHK; and Robert N. Wold, Chairman of Wold Communications.

(For Further Information, contact: Doris Davis, Conference Administrator Telephone (213) 206-0534.)

SCOLA Delays Start of International TV Service for Educators

Satellite Communications for Learning Associated (SCOLA), an international organization of educators based at Creighton University in Omaha Nebraska, has announced a delay in the implementation of its satellite service as reported in the November issue of **World Satellite Update**. According to SCOLA representative Leland Lubbers, the organization must first license and install a C-band uplink before it can begin to transmit.

Initially, SCOLA had planned on using a C-band transportable uplink for the first few months of operation. However, that transportable is no longer available. SCOLA estimates that it will take a minimum of three months to complete the required site survey, licensing process and installation. Mr. Lubbers is encouraged, however, by the recent acquisition of start-up funds for the initial implementation of the SCOLA project. Once underway, the satellite service will be funded by subscriptions from educational institutions throughout North America.

(For further information, contact: Leland Lubbers, Telecommunications, Creighton University, Omaha, Nebraska 68178. Telephone: (402) 280-4063.)

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This month's **World Satellite Update** Interview is with Dr. Joseph N. Pelton, Director of Strategic Policy at INTELSAT and author of **Telepower**.

Update: I'd like you to start off by providing an overview of your role here at INTELSAT as the Director of Strategic Policy.

Dr. Pelton: The only good way I can answer that is just by telling you the various types of projects or activities that we're currently involved in. They range from project SHARE and our bulk purchase of VISTA earth stations, which are examples of what you might call development communications programs, to the ISDN (Integrated Services Digital Network) task force where we are very much interested in viewing ISDN in the broader context of satellite vs. fiber optics. On one hand, we are concerned that people might view ISDN as being essentially a terrestrial concept of what digital services will be in the future. On the other hand, we have an opportunity to really show how satellites can meet and excede ISDN requirements in terms of the British Standards and at the same time offer an enormous degree of flexibility. Overall, we try to examine exactly what initiatives should be embarked upon. Those might range from an increasing emphasis on systematic use of digital echo cancelling throughout the system to a redefinition of services. And we also have to pay attention to earth station standards, the use of smaller earth station or more effective use of earth station equipment to achieve greater productivity, and the continuing objective of trying to deliver higher or more effective power from space. One issue that has recently come forward is the extent to which INTELSAT might be able to either independently, or in conjunction with Signatories, operate a regional DAMA (Demand Assigned Multiple Access) type of operation as opposed to having Signatories individually equipped for that. So we are also continually examining things like regional satellite concepts within the framework of the INTELSAT Agreements.

Update: I'd like to focus for a moment on the television aspect of INTELSAT, how you are repositioning the organization to provide more video services for customers.

Dr. Pelton: We have expanded the total number of INTELSAT services from less than 50 to around 350 different offerings with over 200 of these new options in the television area. Now there are several ways you can break that down. One is analog versus digital. In terms of the future, we think that the digital tariff offerings will be important for High Definition Television as it becomes available.We do offer videoconferencing services, but we essentially consider them as part of our business service offering rather than part of our quote "video service". **We have developed a 15 Megabit per second video carrier which we think performs very nicely and do foresee the possibility in the future of operating with up to five broadcast quality video carriers on a single transponder using digital techniques.**

However, analog is where most of the video business is now. We have reconfigured the offerings to allow a very wide range of options. We now have things like on-peak and off-peak rates. We have part time rates, where you can book say an hour for a particular day on a weekly basis. We of course offer occasional use rates. We have full-time rates, per annual rates, rates that are at various levels of protection, rates that cover TV distribution plus data of various types, whether its just videotext or data distribution. There's also some pending issues about being able to offer video plus voice which have not yet been cleared. If you want different qualities of television and different sizes of video carriers, we have gone from a 17.5 MHz carriers inside a 36 MHz (transponder bandwidth of Intelsat IV & IVA) to a 20 MHz carrier inside of a 41 MHz or 24 MHz television inside of a 72 MHz transponder on INTELSAT V, though to be forthcoming about it, we made this transition at the same time we also went to the smaller size standard A earth station so the net effect is more or less a dead heat on the merry-go-round. We are finding that more people are discovering creative ways to combine international and domestic TV one way or the other. Some people start as domestic systems and then upgrade to an international and domestic or people start off with an international service and then offer domestic services in other countries.

Update: As I understand it, some of British Telecom's Ku-band services on Intelsat VA F11 started out as domestic leases and then converted to international to cover the rest of western Europe.They were faced with paying higher tariffs for the international service even though their technical operations through the satellite remained unchanged. Could you explain the reason behind the higher tariffs?

Dr. Pelton: Yes, there is a differential associated with that and once you pay the differential then you have complete flexibility. The rate for international TV is less than a 10% differential so it's not an enormous difference. In general, INTELSAT charges for what is consumed. It's basically a

resource-based pricing which is essentially the approach mandated by the INTELSAT Agreements. If you use an exclusively power-based formula then someone would be paying exactly the same for a 72 MHz transponder as for a 36 MHz transponder. That seemed counter intuitive to people. And so there has been some attempt to try to adjust somewhat to the value derived. We also have to consider the cost of administering and operating the system. When one operates a domestic system you basically provide the capacity and unless there is some interference on the system you forget about it. When you're operating on an international basis though, a more active role by INTELSAT is required and our operating costs are somewhat higher. I think the bottom line is that INTELSAT does try to charge on the basis of the resource utilized.

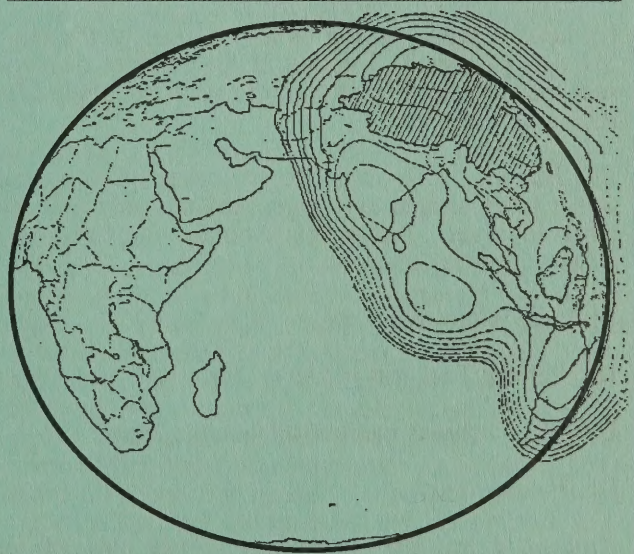
One decision that was made in December is the pricing for digital carriers on the basis of what we call bearer channels.Under the new tariff adopted for digital service we have said that you will pay for the bearer channel and then you will yourself decide that extent to which you will derive additional channels from the bearer channel. Within a reasonable and short period of time people will probably be able to achieve up to a ten-fold increase in capacity from the bearer by using digital speech interpolation (DSI), which will give a 2.5 factor gain, and by 1993 to 1995, a 16 kb/s voice which will give another four-fold increase. Through the CCITT, the ITU has already approved 32 kb/s voice operation and so that will be implemented within the next few years. The CCITT is still debating the issue of 16 kb/s voice and it may be sometime before that's agreed. Probably most telecommunications authorities will not implement it until CCITT standards have been set. There may be people, however, who will go ahead and implement 16 kb/s voice. Equipment is being manufactured now at 9.6 Kb/s. It's not really total quality and most people are reluctant to do so until they feel confident in it. But even if one goes to 32 kb/s plus DSI, that's a five-fold gain with the prospect of a ten fold gain coming a few years later. So the point is that INTELSAT rates have gone down significantly. **We have decreased rates 13 times in a 20 year history and if you allow for inflation, the rates today are twenty times lower than when we started 20 years ago.** If there is rapid implementation of these (digital) techniques we will see a dramatic furthur reduction so that rates for some users will be like cut in half or more depending on how rapidly they move to 16 Kb/s voice.

Update: One of the more significant INTELSAT programs of recent years is Project SHARE which provides free satellite time for experimental efforts. Tell our readers about the Chinese TV services that were transmitted by means of this innovative program.

Dr. Pelton: The Chinese explained to us that they wanted to provide their people with access to a combination of programming developed by China Central TV that was of a more general educational and cultural nature, somewhat equivalent to the PBS programming that we watch in the U.S. There would also be additional programming developed by the Ministry of Education explicity for their National TV University. And they proposed they would transmit the information first via a master earth station in Shanghai and then eventually convert over to a new master earth station outside of Beijing. They also told us that they would also be creating a national network of earth stations. That national network of earth stations expanded very rapidly to a network of 47 earth stations with antenna generally 7-10 meters in size. They subsequently expanded that to 53 earth stations capable of two-way voice and data communications as well as TV reception. Once they decided that the (SHARE) experience was very favorable they decided to very rapidly expand the net furthur with a large number of

Maximum Gain at Beam Center: 33.6 dBW

1st contour:	32.6 dBW	5th contour:	28.6 dBW
2nd contour:	31.6 dBW	6th contour:	27.6 dBW
3rd contour:	30.6 dBW	7th contour:	26.6 dBW
4th contour	29.6 dBW	8th contour:	25.5 dBW



INTELSAT V F-7 East Hemispheric Transmit Beam (China: Tr. 1-2 & 3-4) from 66° East Longitude

receive-only antennas. They have now deployed 1000 receive-only terminals all over the entire country. It is great to see how high-tech and low-tech can work together. Some of these locations are very remote. Not all of them have access roads. I was told by Chinese representatives that installations were accomplished by getting a truck as close to the village as possible and then using its strongest people to walk the earth station into the village.

Update: What size antennas were they using?

Dr. Pelton: Well these were receive only ones and I don't think they were using the 7 meter antennas when they walked into the village.

Update: What size were the receive-only terminals?

Dr. Pelton: I think they were five meters.

Update: So have the Chinese moved from the free capacity that project SHARE offered to the transponders that they purchased from INTELSAT last year?

Dr. Pelton: Yes. It was in April of 1986 that they made the transition. They were one of the first SHARE projects and they were operational from September of 1985 to March of 1986. They made the transition from SHARE capacity to operational lease capacity and then to a transponder purchase in very short order. So far they have bought two transponders and there are indications that they might buy more.

Update: Could you tell us about some of the other SHARE projects? I notice in the booklet that you sent me that there were some projects scheduled for Peru and Pakistan.

Dr. Pelton: The Peru one has taken place. That was a fairly simple exchange. And not only was just Peru involved, the other Andian countries also received the transmission.

Update: When was that?

Dr. Pelton: That was in December.

Update: That was medical teleconferencing?

Dr. Pelton: Yes.

Update: I had an opportunity to see one of the Miami Children's Hospital medical teleconferences when I was in Argentina in October and that was quite impressive. Is that an ongoing project?

Dr. Pelton: Yes. There is one that is going to take place in the next few days which will in effect be the last one under the free use transmission. We have several objectives of project SHARE. One of them of course was to show the full range of possibilities of what could be done. But one of the other important objectives was to try to make a sucessful transmission from a test demonstration to an operating service. That's been one of the strongest complaints that have been made, that a lot of these sideline tests and demonstrations have been very impressive, built up high hopes and expectation and then....

Update: Then that's it.

Dr. Pelton: Then that's it. And then disappointment and criticism follows. We've been working very closely with the Miami Children's Hospital over the year and not entirely sucessfully in terms of that what we had said from the very outset, yes, this is an exciting project, we are really impressed by the number of people that you think you can get involved and the quality of programming seen, but to go operational we think you're going to have to make a transition to a compressed digital type of system. That will be far less expensive. Their reaction has always been "yes this makes a great deal of sense, yes we agree, we understand and we really do want to explore that," but the trouble is they really haven't done anything. They really have not planned for the transition and so with this next one it will come to a head and I hope that it will really not just be the end of the rope for them, because they are so caught up in planning their various programs they never really were able to come to grips with the inevitable need to explore these other options. We did look at other ideas. Like maybe use of a satellite that's very near it's end of life and possibly a special rate or deal for the thing, including the idea that they would maybe have to supply earth stations for some locations, but nothing came of that.

Update: What about the Pakistan project? Is that still on and will that be a similar project to what happened in China?

Dr. Pelton: It's hard to say. We hope so. The way project SHARE stands right now is the end of the application period is the end of April of this year. And then the projects are supposed to completed by the end of this year. Project Pakistan is coming along slowly right now. We have to spend some more time trying to hurry that along.

Update: One of my questions has to do with Ku-

Band capacity because it seems that that was an area of planning that must have surprised you given the high amount of demand and now you actually have much of your capacity leased or purchased by various Signatories. Were you surprised and what do you intend to do about this shortfall in capacity over the next few years?

Dr. Pelton: Yes, we were surprised. Particularly surprised by the rate of uptake of our IBS (International Business Service). IBS was one of those services that we started defining back in 1981. We developed it somewhat slowly and deliberately and then announced it to the world and very little happened. And then a few people started getting IBS earth stations and a few more and then a hell of a lot of terminals appeared in the United States, somewhere close to 50 earth stations, but still there wasn't any traffic! It was sort of like somebody walking through space, a cartoon, you know, where they don't realize that there is not a line underneath them and they don't fall and then eventually they do fall. We looked at all those earth stations and said "Gee, there's alot of earth stations out there, there should be alot of traffic. Gee, I wonder where all that traffic is. Where's the traffic?" In other words, it came all at once and it's still growing very rapidly. Now having said that, it isn't as if that there's all this pent up demand that is not being meet. A number of adjustments have been made and in particular we have put the IBS service on two satellites. By making some adjustments in traffic through moving certain people to different frequencies and by making use of the full frequency band we will be able to accommodate our requirements as best we understand and know them at this time, up until the time that the INTELSAT VI becomes available. While many people are pointing at the Ku-Band shortage on the INTELSAT V's, what they're really talking about is a sort of tight squeeze in certain parts of the Atlantic Ocean Region. There still is a large amount of Ku-Band capacity that is available, though we are seeing alot of demand for both domestic and international services and think that's there's is going to be a continuing need for Ku-Band services. **What we have done recently is we did release a RFP to the industry for in essence a single Ku-Band satellite. In case that seems strange, I would concede that it is an unusual step to take. We knew that there were several options that might be available and we wanted to do it in such a way that when we considered all the options we would end up with the best possible price.**

Update: When was that RFP issued?

Dr. Pelton: That was issued like the 28th of December or something like that. What we're essentially starting is an evaluation process and we will be presenting this information to our Board and any decision will probably come at the March meeting. I would just like to say that this is probably a post call situation because at this point there is no overwhelming indication that we will be short capacity up until the arrival of INTELSAT VI. A tight squeeze, yes. Summary configuration, certain, pinches here and there, but we probably would be able to make it. But at the same time we have the feeling that if we did obtain this additional capacity we probably could sell it and it would probably work out to be a reasonable proposition. But, in other words, the issue is not that INTELSAT has this tremendous need, with a backlog of orders that it cannot fill, therefore it must do this. It's a matter of it looks like a tight squeeze. Is there additional traffic and demand out there that would really make the purchase of an additional facility a reasonable and logical thing to do? I can make a good case for either side.

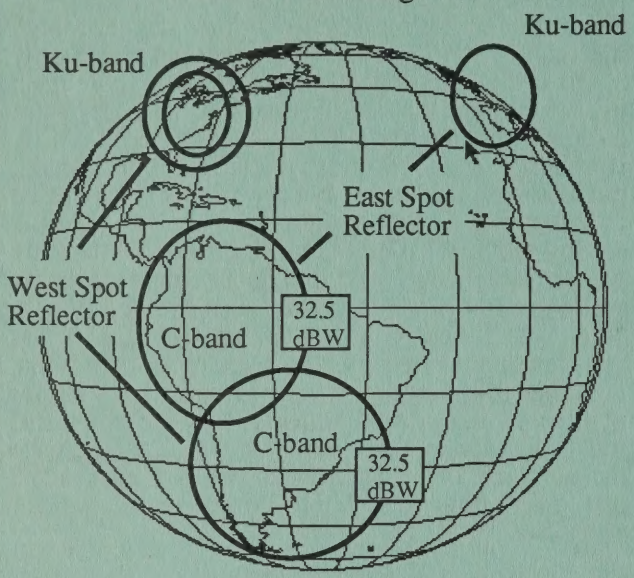
Update: So really that's one of the reason's for the speculation about SBS VI and other satellites already under construction, that could give you an opportunity to launch a spacecraft before you could create one of your own from scratch.

Dr. Pelton: Yes.

Update: I also wanted to touch upon DBS because INTELSAT is already being used for quasi DBS purposes in a number of areas in Europe for example where a number of countries allow home earth station reception of INTELSAT V Ku-Band satellites and C-Band satellites in South America. Do you think that INTELSAT should have a more active role in DBS?

Dr. Pelton: DBS is one of those problem phrases, it's sort of like V-Sat. Everybody has their own definition of what a V-Sat is, under 3 meters or 2.4 meters or under 19.7 dB over K or there's 18 other definitions and probably an equal number of them for what is a DBS service. **There's no doubt that INTELSAT's long-term strategy is toward higher powered satellites and operation through smaller terminals.** Now in some countries there has been laws passed that define the size, shape, and characteristics of antennas for direct home reception. You cannot have more than one per house. It seems to me to be rather silly legislating attempts to control how technology is going to evolve. INTELSAT is clearly not in the position in the relatively near term future, the next five years, to offer a true DBS service. So anything that we do offer is a quasi-DBS type of

INTELSAT VB C- & Ku-Band Transmit Beams
from 53° West Longitude



service and there's no doubt that we will try to provide as wide a range of service as possible. Right now we are more or less limited by the amount of power that we can deliver. Certainly the C-band spot beam antennas for South America could be used. There's three of those that cover all of South America very well, even through it essentially avoids Brazil just because Brazilsat is already there. There is alot of speculation about what will happen. For instance the SES people, there have been rumors of even a possible joint venture with British Telecom. If they do go ahead it sort of limits what market INTELSAT might have there, so let's put it this way, it's not a prime objective. We will basically fill in where we can. Obviously we will try to provide the maximum power levels possible to operate the smallest type of terminal. That's typically 3 meters.

Update: When I was in Argentina I talked with a gentleman at the Ministry of Telecommunication and he told me that they were seriously considering using the C-band spot beam. Their primary concern was reaching stations in Antarctica and that they were going to conduct tests to see if it would be possible to use a hemispheric beam and eventually go to a spot beam. Has Argentina actually made a decision about their lease at this time?

Dr. Pelton: They're close to it. There's a problem of financing and a few other issues, like you mention, but essentially they're very close to a decision. We're having very detailed on-going discussions with them and hope that there will be a final decision very soon. That probably would be at our Board meeting in March.

Update: One of the key developments in INTELSAT recently of course had to do with Mr. Colino. Mr. Colino had the unfortunate experience of being on the cover of a major satellite magazine with a subheading that said "The New INTELSAT" the same month he was asked to resign. What are the positive aspects of the change in Director General's which will happen later this year?

Dr. Pelton: Well, I'm not sure I would feel comfortable putting it in that light. I would say this much that I do beleive that Mr.Colino did start or helped to start a number of new initiatives--smaller earth stations--you know, new services. He certainly supported project SHARE and the VISTA procurement program and a number of things that I thought personally were very important to get underway. INTELSAT will carry on the best and the brightest of the Colino initiatives and you know in many ways they were INTELSAT's initiatives. There was recognition by the Board and by the staff of the need to make these changes, so that I see a new Director General probably finding a very sympathetic staff and Board to help INTELSAT become competitive and to continue a dynamic image for the future. So it's not that I see the departure of Colino meaning that we're going to drop a lot of bad ideas or bad initiatives as much as the fact that we may have a new Director General who will be able to carry on those initiatives with perhaps less of an adversarial relationship.

Update: Mr. Colino acted as sort of a lightening rod for a certain type of interaction with some competing entities that have different ideas about how the world satellite network should function.

Dr. Pelton: I think INTELSAT will probably continue to place a great deal of emphasis on what you might call a good offense, as well as a good defense, although we may carry those two objectives out with a somewhat friendlier face. But I don't see that there is going to be a retrenchment and many of the new initiatives make INTELSAT more competitive by the range of services offerings, lower prices and so on, on one hand and two, holding firm to the provisions of the INTELSAT Agreement and the various aspects of the Understandings, international understandings under which INTELSAT operates. So I think it's probably a matter of style perhaps more than substance. **When Rich Colino was here it instantly became a very exciting place to work and I think everybody has every expectation that it will continue to be that way in the future.**